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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/508,814	09/22/2004	Renate Tapper	331.1074	5751

23280 7590 04/26/2007  
DAVIDSON, DAVIDSON & KAPPEL, LLC  
485 SEVENTH AVENUE, 14TH FLOOR  
NEW YORK, NY 10018

EXAMINER
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CLEMENTE, ROBERT ARTHUR

ART UNIT	PAPER NUMBER
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1724

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/26/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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<b>Office Action Summary</b>	<b>Application No.</b> 10/508,814	<b>Applicant(s)</b> TAPPER ET AL.	
	<b>Examiner</b> Robert A. Clemente	<b>Art Unit</b> 1724	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 March 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 15-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 15-17, 23-25 and 27-30 is/are rejected.
- 7) ☒ Claim(s) 18-22 and 26 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments filed on March 2, 2007 have been fully considered but they are not persuasive.

The examiner admits that Aston does not show a protective grid as claimed, however, the examiner respectfully disagrees that Hirata does not show a "protective grid". The examiner notes that the structure of Hirata is used a filter, however, the structure also has all the claimed features of a "protective grid" and inherently would function as a protective grid in the combination with Aston. As discussed in the previous office action, there is motivation to replace an adsorptive layer of Aston with the adsorptive filter of Hirata since Hirata discloses a filter unit with a very large adsorption capacity and a small pressure loss compared to a conventional filter media. The examiner notes the sections of Hirata (Col. 7, lines 13 – 17) and Aston (Col. 3, lines 63 – 67) showing the filter of Hirata and the HEPA media of Aston are both intended to be used as a primary filter, however, the examiner respectfully disagrees that these sections teach against the combination. Although the filter of Hirata is intended to be used alone there is no suggestion that it would not function properly in combination with another filter.

***Claim Rejections - 35 USC § 103***

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 15 – 17, 23, 24, 29 and 30 rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 5,288,298 to Aston in view of US Patent No. 6,352,579 to Hirata et al.

Aston teaches a cassette filter, as broadly recited in the claim, comprising a frame (20) and HEPA media (15), or pleated filter material as shown in the figure, disposed in the frame. See figure 1 and respective portions of the specification. Inherently the pleated HEPA media (15) will have some first flow resistance. Additionally, Aston shows layers (11, 12, 13) before the HEPA media, with the closest layer (13) being one including an activated carbon adsorbent. Aston does not disclose any protective grid disposed in the frame. Hirata et al. teaches a chemical filter, as shown in figure 3, with fiber sheets (10), or films, that are laminated, or glued, together to form the filter media (9). The films extend parallel to the gas flow and are all identically bent to form the gas passages (11). Inherently the laminate, or glue, holds the sheets together at their points of contact outside the gas passages. As disclosed in column 2, lines 46 – 48, this filter unit has a very large adsorption capacity and a small pressure loss compared to conventional filter media.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Aston to include an activated carbon adsorption material of the type disclosed by Hirata et al. since this filter has been disclosed to have a larger adsorption

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capacity and a smaller pressure loss. Since the filter unit of Hirata et al. has a resilient structure, as disclosed in column 3 lines 48 – 50, it inherently acts as a protective grid in combination with the filter of Aston. Also, the adsorption media of Hirata et al. inherently has a lower flow resistance than the pleated HEPA filter of Aston since HEPA filters must have very small pores to function.

In regard to claim 16, as shown in figure 3 of Hirata et al., the fiber sheets (10), or films, are bent in a way to form hexagonal gas passages (11), or films rings, as broadly recited in the claim.

In regard to claim 17, in figure 3, the fiber sheets (10) are shown to have reciprocating corrugations and reciprocating bends.

In regard to claim 23, as disclosed in column 4 lines 38 – 44, the fiber sheets, or films, can include a heat fusible polymer with a melting point lower than that of the fiber sheets. The polymer layer can be considered an adhesive layer since the melting of this layer is used to laminate, or glue, the fiber sheets together. The fiber sheets can be considered a supporting layer since they form the structure of the filter media.

In regard to claim 24, the fiber sheets, or support layers as discussed above, are made from paper, as disclosed in column 3 line 66.

In regard to claims 29 and 30, these claims provide no structural limitations, since the combination of Aston and Hirata et al. meets the structural limitations of the base claim it is inherent that it also meets the functional limitations disclosed in claims 29 and 30.

4. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aston and Hirata et al. as applied to claims 15 – 17, 23, 24, 29 and 30 above, and further in view of International Publication No. WO 96/19279 to Krogmann.

Aston and Hirata et al. are discussed above in paragraph 4. The pleated filter media is taught by the reference to Aston; however, this reference does not disclose using spacer strips glued to the partings of the filter media for support. Krogmann discloses a filter pack (1) with a pleated filter material (2). The filter pack includes a protective screen (3), or grid, glued to spacers (8), which are glued to the filter material (2).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Aston and Hirata et al. to include spacers that are glued to the filter and protective grid for support as suggested by Krogmann in order to protect the arrangement of the pleated filter material.

5. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aston and Hirata et al. as applied to claims 15 – 17, 23, 24, 29 and 30 above, and further in view of US Patent Application Publication No. 2003/0177909 to Koslow.

Aston and Hirata et al. are discussed above in paragraph 4. The pleated filter media is taught by the reference to Aston; however, this reference does not disclose the material the filter media is made from. In paragraph 0037, Koslow discusses the prior art epoxy-glass filter papers that are used in HEPA filters. These filters have a glass paper part and an epoxy resin, or nonwoven, part. In paragraph 0046, Koslow discloses

constructing the HEPA filter using a binder and the glass or synthetic nanofibers of his invention.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Aston and Hirata et al. to produce the pleated HEPA filter from a filter material including paper and a nonwoven material or including a binder and glass or synthetic fibers, as suggested by Koslow since these materials have been proven effective in the art for producing HEPA filters.

***Allowable Subject Matter***

6. Claims 18 – 22, and 26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter:

In regard to claims 18 – 22, the examiner did not find any prior art that taught or suggested a protective grid with the specified wall thickness, open area percentage, passage hole diameter, and core height.

In regard to claim 26, the examiner did not find any prior art that taught or suggested plastic spacers for a pleated filter material that are made from both foamed and unfoamed plastic.

**Conclusion**

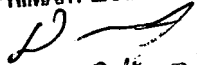
8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert A. Clemente whose telephone number is (571) 272-1476. The examiner can normally be reached on M-F, 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

DUANE SMITH  
PRIMARY EXAMINER

  
4-24-07



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Robert A Clemente  
Examiner  
Art Unit 1724

RAC

DUANE SMITH  
PRIMARY EXAMINER

*D-A*  
*4-24-07*